BMP #12 - Hydromulching

Targeted Pollutants

- ● Sediment
- ◒ Phosphorus
- ○ Trace metals
- ○ Bacteria
- ○ Petroleum hydrocarbons

Physical Limits

Drainage area	2 ac
Max slope	15 %
Min bedrock depth	N/A
Min water table	N/A
SCS soil type	ABCD
Freeze/Thaw	fair
Drainage/Flood control	no

DESCRIPTION

Hydraulic mulching is a process where wood fiber mulch, processed grass, hay or straw mulch are applied with a tacking agent in a slurry with water to provide temporary stabilization of bare slopes or other bare areas. This mulching method provides uniform, economical slope protection. It may be combined with hydroseeding as a revegetation method (see BMP #35-Seeding).

APPLICATIONS

Hydraulic mulching is an effective way to increase water retention (thereby reducing erosion) for six months or up to one year. Beyond one year, the effectiveness drops off.

Hydraulic mulching can be applied to areas that are within about 200 feet (60 meters) of a road or that can otherwise be reached by truck. Small roadside slopes and large, relatively flat areas are well adapted to this method. When adequate moisture exists, the slurry can be combined with seed and fertilizer to initiate stabilization and revegetation in a single application (see BMP #3-Preservation of Existing Vegetation). The mulch usually lasts about a year. The growing vegetation is needed to provide continued stabilization.

LIMITATIONS

- Loses effectiveness after one year.
- Only suited for physically stable slopes (at natural angle of repose, or less).
- Avoid hydraulic mulching on long uninterrupted slopes. Break up concentrated flows with other BMPs, such as BMP #17-Gradient Terracing or BMP #22-Check Dams.

DESIGN PARAMETERS

Effectiveness: Hydraulic mulching initially reduces sediment generation by 70 to 80 percent as compared to sediment production off bare slopes. Within two years, the breakdown of wood fiber will have reduced its effectiveness to 40 to 60 percent. Beyond that time, only 10 to 30 percent effectiveness can be expected, and the mulch should be replaced. Nutrient generation is typically reduced 50 to 70 percent for six months, 20 to 50 percent up to two years, and 0 to 10 percent beyond two years.

Equipment: The hydraulic mulching machine should be equipped with a gear-driven pump and a paddle agitator. Agitation by recirculation from the pump is not acceptable. Agitation must be sufficient to produce a homogeneous slurry of tacking agent and mulch (and seed fertilizer, if used).

Application rates: Apply the water at a minimum rate of 3000 gallons per acre (28 cubic meters per hectare). Tacking agent should be applied at 28.5 ft3 (2.0 m3) of wet ingredients per acre (hectare) or 90 kilograms of dry ingredients per hectare.

When seeding is combined with hydraulic mulching, be sure to include an appropriate specified formulation at the specified rate. Legume seeds should be pellet inoculated with the appropriate bacteria. Inoculation rates should be four times that required for dry seeding.

CONSTRUCTION GUIDELINES

- The time allowed between placement of seed in the hydraulic mulcher and the emptying of the hydraulic mulcher tank should not exceed 30 minutes.
- Wood fiber may be dyed to aid in uniform placement. Dye should not stain concrete or painted surfaces nor injure plant or animal life when applied at the manufacturer's recommended rate.
- Application of the slurry should proceed until a uniform cover is achieved.
- The applicator should not be directed at one location for too long a period of time or the applied water will cause erosion.

MAINTENANCE

Hydraulically-mulched slopes should be inspected periodically for damage due to wind, water, or human disturbance. Repair all damaged areas immediately using hydraulic mulching at the original specifications or straw mulch.